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Exhibit R-2, RDT&E Budget Item Justification: PB 2011 United States Special Operations Command									DATE: February 2010		
APPROPRIATION/BUDGET ACTIVITY 0400: Research, Development, Test & Evaluation, Defense-Wide BA 2: Applied Research				R-1 ITEM NOMENCLATURE PE 1160401BB: Special Operations Technology Development/S100							
COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
Total Program Element	32.167	30.606	26.545	0.000	26.545	29.350	31.307	31.872	32.449	Continuing	Continuing
S100: Special Operations (SO) Technology Development/Project S100	32.167	30.606	26.545	0.000	26.545	29.350	31.307	31.872	32.449	Continuing	Continuing

A. Mission Description and Budget Item Justification

This program element enables USSOCOM to conduct studies and develop laboratory prototypes for applied research and advanced technology development, and leverages other organizations' technology projects that may not otherwise be affordable within MFP-11. Small incremental investments with DoD, other government agencies, and commercial organizations allows USSOCOM to influence the schedule and direction of technology developments, emerging technologies and capabilities for Special Operations Forces. This USSOCOM investment strategy is used to link technology opportunities with capability deficiencies, capability objectives, technology thrust areas, and technology objectives.

B. Program Change Summary (\$ in Millions)

	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Previous President's Budget	35.400	27.384	0.000	0.000	0.000
Current President's Budget	32.167	30.606	26.545	0.000	26.545
Total Adjustments	-3.233	3.222	26.545	0.000	26.545
• Congressional General Reductions		-2.853			
• Congressional Directed Reductions		0.000			
• Congressional Rescissions	0.000	0.000			
• Congressional Adds		6.075			
• Congressional Directed Transfers		0.000			
• Reprogrammings	-2.378	0.000			
• SBIR/STTR Transfer	-0.855	0.000			
• Other Adjustment	0.000	0.000	26.545	0.000	26.545

Congressional Add Details (\$ in Millions, and Includes General Reductions)

Project: S100: Special Operations (SO) Technology Development/Project S100

FY 2009	FY 2010

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<u>Congressional Add Details (\$ in Millions, and Includes General Reductions)</u>		FY 2009	FY 2010
Congressional Add: <i>Flashlight Soldier-to-Soldier Combat ID System</i>		5.584	4.500
Congressional Add: <i>Foliage Penetrating Reconnaissance and Surveillance</i>		3.191	0.000
Congressional Add: <i>Extended Lifetime Radioisotope Batteries</i>		1.595	0.000
Congressional Add: <i>Unified Management Infrastructure System</i>		1.196	0.000
Congressional Add: <i>USSOCOM STAR-TEC Partnership Program</i>		0.000	1.575
Congressional Add Subtotals for Project: S100		11.566	6.075
Congressional Add Totals for all Projects		11.566	6.075
<u>Change Summary Explanation</u>			
Funding:			
FY09: Decrease of -\$3.233 million is due to Small Business Innovative Research transfer (-\$0.855 million), FY09 Omnibus reprogramming FY09-26PA (-\$1.600 million), and DD 1415-3 reprogramming action FY09-18IR (-\$0.778 million).			
FY10: Net increase of \$3.222 million is due to a congressional mark (-\$2.750 million), a decrease of -\$0.103 million due to Section 8097 congressional general reduction, and two congressional adds:			
- Flashlight Soldier-to-Soldier Combat ID System (\$4.500 million)			
- United States Special Operations Command STAR-TEC Partnership Program (\$1.575 million)			
FY11: Increase of \$26.545 million is due to the DoD not estimating FY 2011 cost when the FY 2010 President's Budget was prepared.			
Schedule: None.			
Technical: None.			

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COST (\$ in Millions)	FY 2009 Actual	FY 2010 Estimate	FY 2011 Base Estimate	FY 2011 OCO Estimate	FY 2011 Total Estimate	FY 2012 Estimate	FY 2013 Estimate	FY 2014 Estimate	FY 2015 Estimate	Cost To Complete	Total Cost
S100: <i>Special Operations (SO) Technology Development/Project S100</i>	32.167	30.606	26.545	0.000	26.545	29.350	31.307	31.872	32.449	Continuing	Continuing

Note

In FY09, the Capability Areas were listed separately. Beginning in FY10, the Capability Areas were subsumed under the REITS Sub-Project umbrella. The FY09 funds and accomplishments associated with each Capability Area are listed under the REITS Sub-Project in this President's Budget for clarity.

A. Mission Description and Budget Item Justification

This project conducts studies and develops laboratory prototypes for applied research and advanced technology development, as well as leverages other organizations' technology projects that may not otherwise be affordable within MFP-11. Small incremental co-investments with DoD, other government agencies, and commercial organizations allows USSOCOM to influence the direction of technology developments, emerging technologies, and capabilities for Special Operations Forces (SOF), with significant economies of investment. This USSOCOM investment strategy is used to link technology opportunities with capability deficiencies, capability objectives, technology thrust areas, and technology objectives. Requirements in these areas may be advertised to industry and government research and development agencies via broad area announcements and calls for white papers. Sub-projects include:

- Rapid Exploitation of Innovative Technologies (REITS). REITS provides USSOCOM the ability to identify, assess and exploit emerging innovative technologies for SOF capability deficiencies and expedite technology transitions from the laboratory to operational use. These technologies provide new transformational capabilities and immediate operational impacts, while providing a compass for the direction of future SOF procurement. REITS supports both top-down and bottom-up approaches for USSOCOM Components, Theater Special Operations Commands and Special Operations Task Forces to articulate innovative technology recommendations. Requirements are submitted to USSOCOM for review and/or approval. The approval process is through the USSOCOM Quick Reaction Board (QRB). The senior approval authority is the USSOCOM Deputy Commander. Members include USSOCOM's Director of Operations, Director of Requirements, Acquisition Executive, Science Advisor, and Interagency Task Force Director. The tenets of the QRB are to promote speed, evolution, collaboration, and engagement in three technology Capability Areas: 1) Command, Control, Communications, and Computers (C4); Intelligence, Surveillance and Reconnaissance (ISR); and Sensors; 2) Mobility; and 3) SOF Warrior Survivability and Medical. An individual Technology Activity can be submitted from every echelon of command through the USSOCOM "HardEdge" portal for initial evaluation and distribution to industry, academia, laboratories or our in-country mobile technology complex to build the solution. The process is detailed in a USSOCOM Directive, "Rapid Technology Support to Special Operations."

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<p><input type="checkbox"/> C4, ISR, and Sensors Capability Area. Develop technologies that provide SOF with improved situational awareness and communications in all environments. Develop technologies to provide significant improvements to SOF's capability to accurately detect and track threats or targets. Exploit and demonstrate technologies that provide enhanced sensors and command and control. Develop technologies to provide new and improved capabilities in information operations and psychological operations. Exploit and develop technologies to provide SOF with standoff capabilities for targeting and locating personnel and equipment. Exploit technologies to provide real-time active decision-making capabilities, increased situational awareness, improved multi-spectral sensors, and advanced processing and display capabilities. Exploit technologies that enhance logistics, reduce cost and enhance performance of SOF weapons and munitions. Exploit technologies to provide multipurpose, adaptable weapons applicable to SOF platform and missions</p> <p><input type="checkbox"/> Mobility Capability Area. Exploit and develop technologies to improve the performance and survivability, and reduce the detectability of SOF mobility assets. Exploit and develop technologies to provide SOF the capability to conduct ground, air, and sea mobility operations in denied areas. This capability area exploits and develops technologies to enhance logistics support, reduce cost, and improve the performance of SOF mobility platforms.</p> <p><input type="checkbox"/> SOF Warrior Survivability and Medical Capability Area. Exploit and develop technologies to increase SOF's survivability and performance. Exploit technologies to improve the human endurance and sensory performance without interfering with normal sensory functions. Exploit and develop technologies to counter the threat of electro-optical devices, devices that detect human presence and enhance individual operator capabilities. Exploit and develop technologies that center on physiological, psychological, and ergonomic factors affecting the ability of SOF to perform missions. USSOCOM requires unique approaches to combat casualty care, medical equipment, and other life support capabilities, including life support for high altitude parachuting, combat swimming, and other SOF-unique missions. This capability area provides guidelines for the development of selection and conditioning criteria, thermal protection, decompression procedures, combat casualty procedures, and life support systems. This capability area also supports the development and evaluation of biomedical enhancements for the unique requirements of all SOF in the conduct of their diverse missions. The following technology activities are included in this capability area:</p> <ul style="list-style-type: none"> o Combat Casualty Management Technology Activity: Reviews the emergency medical equipment currently used in the SOF community and compares it to currently available civilian technology, provides field testing of emergency medical equipment in the adverse environmental conditions encountered by SOF, evaluates current tactical combat casualty care doctrine to ensure consideration of the wide variety of tactical scenarios encountered and applies the latest concepts in casualty care to these circumstances, applies lessons learned from recent combat operations to enhance medical capabilities, and develops CD-ROM and internet compatible automated programs to provide the capability to perform medical interviews in multiple foreign languages and support SOF medical personnel information needs while operating in austere locations. o Decompression for SOF Diving Operations Technology Activity: Decreases the decompression obligation in SOF diving operations through the use of surface-interval oxygen breathing, which provides the basis for extended mission profiles, and investigates pre-oxygenation requirements for high-altitude SOF parachute operations and ground operations at extreme altitudes. o Exercise-related Injuries Technology Activity: Evaluates the effectiveness of applying sports medicine diagnostic, therapeutic and rehabilitative techniques in management of the traumatic and overuse injuries commonly encountered among SOF. 		

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<p>o Inhaled Gas Toxicology Technology Activity: Evaluates the feasibility of using pharmacologic intervention to reduce or eliminate the possibility of central nervous system toxicity.</p> <p>o Medical Sustainment Training Techniques Technology Activity: Examines novel ways of providing and documenting medical sustainment training for SOF corpsmen and physicians, provides capabilities to rapidly develop new protocol and equipment instructions, and develops a system for constantly upgrading the expertise of SOF medical personnel by incorporating new research reports and clinical information into a CD-ROM based computer system that can be used by medical personnel in isolated duty circumstances.</p> <p>o Thermal Protection Technology Activity: Researches various ensemble clothing and devices that may potentially enhance SOF operator performance.</p> <p>o Mission-related Physiology Technology Activity: Develops accurate measures to evaluate SOF mission-related performance, delineates nutritional strategies designed to help personnel apply known nutritional concepts to optimize performance in mission and training scenarios, evaluates potential ergogenic agents as they apply to enhancing mission-related performance, studies the safety and efficacy of various substances to increase performance in sustained operations; studies interfaces of new vision devices with refractive vision enhancements, and studies pharmacologic measures to prevent acute mountain sickness in high altitude SOF air and ground operations.</p> <p>• Tagging, Tracking, and Locating (TTL) Sub-Project: TTL technologies are a key element in the ability of SOF to find, fix, and finish targets in overseas contingency operations (OCO). This sub-project invests in critical science and technology efforts to improve operational capabilities for TTL high value individuals and objects in support of the OCO.</p> <p>• Classified Sub-Project (provided under separate cover).</p> <p>• The following technology activities were added by congress in FY 2010:</p> <p><input type="checkbox"/> Flashlight Soldier-to-Soldier Combat ID System: Continue to develop a flashlight soldier-to-soldier combat identification system.</p> <p><input type="checkbox"/> USSOCOM STAR-TEC Partnership Program: Establish an ultra-responsive, local resource tied to academia, science and industry to meet unique SOF requirements.</p> <p>• The following technology activities were added by congress in FY 2009:</p> <p><input type="checkbox"/> Flashlight Soldier-to-Soldier Combat ID System. Began development of a flashlight soldier-to-soldier combat identification system.</p> <p><input type="checkbox"/> Foliage Penetrating Reconnaissance and Surveillance System. Developed and evaluated a multi-sensor foliage penetrating reconnaissance and surveillance system.</p>		

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<input type="checkbox"/> Extended Lifetime Radioisotope Batteries. Developed power solutions to provide long-lasting, high density power for small autonomous devices. <input type="checkbox"/> Unified Management Infrastructure System. Developed a network-based remote communication and control platform for monitoring, managing and controlling many different types of net-centric devices and platforms.					
B. Accomplishments/Planned Program (\$ in Millions)					
	FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
Rapid Exploitation of Innovative Technologies for SOF (REITS) - C4, ISR, and Sensors Capability Area <i>FY 2009 Accomplishments:</i> FY09 Continued the Enhanced Hostile Detection System, Night Vision Windshield/Advanced Distributed Aperture System (ADAS), Battlefield Helicopter Emulator, and the Short Wave Infrared Radar (SWIR) Identify Friend or Foe System, and Sea Eagle Technology Activities. <i>FY 2010 Plans:</i> FY10 Continue the ADAS Joint Concept Technology Demonstration and development of the Advanced Dual Band Night Vision Goggles. Complete the Enhanced Hostile Detection System. Establish capabilities that can be exploited by SWIR sensors and transition to an acquisition program. Prototype flexible advanced optics and develop new color digital night vision technology. Develop a software solution for super resolution residing on focal plane arrays. <i>FY 2011 Base Plans:</i> FY11 Develops advanced sensors, multi-spectral optics, high band-width technologies and multi-level security systems.	6.527	8.494	9.799	0.000	9.799
Rapid Exploitation of Innovative Technologies for SOF (REITS) Sub project - Mobility Capability Area <i>FY 2009 Accomplishments:</i> FY09 Tested the Maverick Unmanned Aerial Vehicle (UAV).	1.675	1.500	2.500	0.000	2.500

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B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2010 Plans: FY10 Continue to test the Maverick UAV using various payloads. Start developmental work on a Counter UAV Pulsed Energy Projectile.						
FY 2011 Base Plans: FY11 Pursues low observable and counter low observable technologies to develop advanced lightweight armor and materials. Investigate multi-domain mobility platforms.						
Rapid Exploitation of Innovative Technologies for SOF (REITS) Sub project - SOF Warrior Survivability and Medical Capability Area FY 2010 Plans: FY10 Conduct concept studies to explore and validate mission-based experiments. Continue application of a blast-wave sensor for the detection of blast overpressure in the screening of mild traumatic brain injury. Develop a prototype altitude readiness management system decision aid, which will monitor the efficacy of pulse waves for mobile triage capability for SOF Medics. Study health hazards of breaching charges in complex environment. FY 2011 Base Plans: FY11 Develop far-forward Tactical Combat Casualty Care. Pursue rapid assays/diagnostics, reduce operator load, and provide advanced protection.		0.000	2.000	2.100	0.000	2.100
Classified Sub project FY 2009 Accomplishments: FY09 Details provided under separate cover. FY 2010 Plans: FY10 Details provided under separate cover.		1.674	2.094	2.037	0.000	2.037

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B. Accomplishments/Planned Program (\$ in Millions)						
		FY 2009	FY 2010	FY 2011 Base	FY 2011 OCO	FY 2011 Total
FY 2011 Base Plans: FY11 Details provided under separate cover.						
Tagging, Tracking, and Locating (TTL) Sub-Project FY 2009 Accomplishments: FY09 Specific objectives, priorities, and technical approaches are classified. Continued projects to exploit nanotechnology, biotechnology, and chemistry for application to TTL systems. Initiated projects identified in the USSOCOM/DoD Roadmap. Supported the Joint Chiefs of Staff TTL Quick Look Capability Assessment. FY 2010 Plans: FY10 Specific objectives, priorities, and technical approaches are classified. Continue projects to exploit nanotechnology, biotechnology, and chemistry for application to TTL systems. Initiate projects identified in the USSOCOM/DoD Roadmap. Support the Joint Chiefs of Staff TTL Quick Look Capability Assessment. FY 2011 Base Plans: FY11 Specific objectives, priorities, and technical approaches are classified. Continues projects to exploit nanotechnology, biotechnology, and chemistry for application to TTL systems. Initiates projects identified in the USSOCOM/DoD Roadmap. Supports the Joint Chiefs of Staff TTL Quick Look Capability Assessment.		10.725	10.443	10.109	0.000	10.109
Accomplishments/Planned Programs Subtotals		20.601	24.531	26.545	0.000	26.545
		FY 2009	FY 2010			
Congressional Add: Flashlight Soldier-to-Soldier Combat ID System		5.584	4.500			

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B. Accomplishments/Planned Program (\$ in Millions)		
	FY 2009	FY 2010
<i>FY 2009 Accomplishments:</i> FY09 Continued FY08 development to provide technology that reduces friendly fire casualties and increases combat effectiveness. <i>FY 2010 Plans:</i> FY10 Continued from FY09 to provide technology that reduces friendly fire casualties and increases combat effectiveness.		
Congressional Add: Foliage Penetrating Reconnaissance and Surveillance <i>FY 2009 Accomplishments:</i> FY09 Continued FY08 development. Foliage penetrating synthetic aperture radar offers the capability for penetrating materials that are optically opaque, and thus, not visible by optical or infrared techniques.	3.191	0.000
Congressional Add: Extended Lifetime Radioisotope Batteries <i>FY 2009 Accomplishments:</i> FY09 Continued FY08 development to demonstrate small prototype integrated power systems that use radioisotope batteries to continuously trickle-charge larger batteries and capacitors.	1.595	0.000
Congressional Add: Unified Management Infrastructure System <i>FY 2009 Accomplishments:</i> FY09 Developed a network-based remote communication and control platform for monitoring, managing and controlling many different types of net-centric devices and platforms.	1.196	0.000
Congressional Add: USSOCOM STAR-TEC Partnership Program	0.000	1.575

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B. Accomplishments/Planned Program (\$ in Millions)			
		FY 2009	FY 2010
<i>FY 2010 Plans:</i> FY10 Establish an ultra-responsive, local resource that is tied to academia, science and industry to meet unique SOF requirements.			
Congressional Adds Subtotals		11.566	6.075
C. Other Program Funding Summary (\$ in Millions)			
N/A			
D. Acquisition Strategy			
N/A			
E. Performance Metrics			
N/A			

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